

### REMARKS/ARGUMENTS

Claims 1-38 are currently pending.

In the outstanding Office Action Claims 1-12, 14-27 and 29-38 were rejected as being unpatentable over Tadakuma et al. (“A 104GHZ 328 FS Solitron Pulse Train Generation Through a Comb-Like Dispersion Profiled Fiber Using Short High Nonlinear Dispersion Fibers”) in view of Yatsu et al. (“High-Quality Sub-100-FS Optical Pulse Generation by Fiber-Optical Solitron Compression of Gain-Switched...”); and Claims 13 and 28 were rejected as being unpatentable over Tadakuma et al. in view of Yatsu et al. and in further view of Chernikov et al. (“Comb-Like Dispersion-Profiled Fiber for Solitron Pulse Train Generation”).

Claim 1 is directed to a device for producing optical pulses comprising an optical mirror that includes a fiber optic loop. The fiber optic loop comprises a comb-like dispersion profiled fiber having three or more sections characterized by changes in dispersion and arranged to compress pulses propagating there through.

It is believed that Applicants have been the first to invent such a system that combines the fiber optic loop with a comb-like dispersion profiled fiber. It appears as though the outstanding Office Action does not dispute this, as this claim is only rejected as being “obvious” in view of two prior art references, namely Tadakuma et al. and Yatsu et al. The outstanding Office Action asserts that it would have been obvious to use the CDPF of Tadakuma et al. as the fiber optic loop in Yatsu et al. Applicants respectfully traverse this rejection.

There are three basic requirements for a *prima facie* case of obviousness, (1) there must be some suggestion or motivation to modify the reference or to combine the reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art reference must teach or suggest all the claim limitations. It is respectfully submitted that in

light of the teachings of Tadakuma et al. and Yatsu et al., one of ordinary skill in the art would have lacked the motivation to combine these references, especially since there would be no reasonable expectation of success based on what was disclosed in these references.

Tadakuma et al. is directed to a pulse generation circuit that produces a 328fs Soliton pulse train using a comb-like dispersion profiled fiber. As recognized in the outstanding Office Action, the CDPF as shown in Figure 2, is placed in a linear fashion between an EDFA and an output device. Tadakuma et al. mentions nothing about an optical loop.

Yatsu et al. is directed to an optical pulse generation circuit that uses two particular types of pedestal suppressors from “carefully designed nonlinear fiber loops, namely compound fiber loop mirrors and nonlinear-optical loop mirrors.” The goal of the device in Yatsu et al. is to produce sub-100-fs optical pulses (see, e.g., title). In particular, Yatsu et al. recognize that NOLMs (nonlinear-optical loop mirrors) work successfully to suppress noise in Soliton pulses in the range of 250-500fs. Nevertheless, Yatsu et al.’s stated objective is to determine whether it is possible to suppress pedestals in the sub-100-fs range.

Since it is the objective for Yatsu et al. to operate on pulses in the sub-100-fs optical pulse range, it is respectfully submitted that Yatsu et al. would not motivate one of ordinary skill in the art to use a CDPF like that disclosed in Tadakuma et al., which is directed to producing 328 fs Soliton pulses. M.P.E.P. §2143.01 states that the prior art must suggest the desirability of the claimed invention. However, there would be no desirability given that Yatsu et al. was attempting to strive to obtain pulses much shorter in time span than the 328 fs pulses generated in Tadakuma et al. Rather, Yatsu et al. was experimenting with both CFLMs and NOLMs as a way to suppress pedestals. Thus, since the stated goal of Yatsu et al. is to attempt to suppress pedestals to form sub-100-fs pulses, there is no reason to believe that Yatsu et al. would have provided a motivation to abandon its use of CFLMs and NOLMs, to use a CDPF in place of the CFLM or NOLM. Moreover, since Yatsu et al. was


successful in using the CFLM or the NOLM, there would have been no reasonable expectation of success using a CDPF that was taught for producing a much wider pulse, namely 328 fs. Accordingly, as there would have been no reasonable expectation of success nor a motivation to combine the teachings of Tadakuma et al. with Yatsu et al. (without risking to render Yatsu et al. unfit for its intended purpose) it is respectfully submitted that the combination of Tadakuma et al. in view of Yatsu et al. is based on unreasonable and improper hindsight reasoning. Consequently, it is requested that the rejection of Claim 1 based on these references be withdrawn. Although Claims 2-12, 14-27 and 29-38 are of differing scope and/or statutory class, it is respectfully submitted that these claims also patentably define over the combination of Tadakuma et al. in view of Yatsu et al. for substantially the same reasons as discussed above with regard to Claim 1.

With regard to Claims 13 and 28, these claims are rejected based on a tertiary reference to Chernikov et al., which is asserted for its disclosure of a CDPF coupled after an optical source for compressing an optical pulse. However, even if Chernikov et al. does disclose this feature, this feature does not cure the deficiencies as discussed above with regard to Claim 1 and the other pending claims. Namely, Chernikov et al. does not teach that the combination of Yatsu et al. in view of Tadakuma et al. (or vice versa) would provide a reasonable expectation of success, and may render Yatsu et al. unfit for its intended purpose.

Consequently, in light of the above discussion it is believed that Claims 1-38 patentably define over the asserted prior art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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